

REMARKS/ARGUMENTS

Claims 1 and 14 - 18 are pending.

An objection was raised in connection with the title of the invention. In response, the title has been amended to be more descriptive.

Claim 2 was rejected under 35 U.S.C. Section 112, Second paragraph.

Claims 1-13 are rejected under 35 U.S.C. Section 102 for allegedly being anticipated by Stallmo et al., U.S. Patent No. 5,875,456.

Claim 1 has been amended and incorporates subject matter from claim 2. Claims 2 - 13 have been canceled without prejudice in favor of new claims 14 - 18.

The present invention is directed to computer storage with reconfigurable logical volumes. An aspect of the invention recited in claim 1 is an "LU controller comprising an LUN map designating a correlation among an outer LUN, one or more inner LUNs, and a computer ID, said outer LUN designating an outer logical volume that can be accessed by one of said computers, each of said inner LUNs designating one of said inner logical volumes whereby said outer logical volume can be associated with one or more of said inner logical volumes." Thus each computer (e.g., element 2a in Fig. 1) accesses a logical volume by designating an outer LUN (logical unit number). Moreover, the LUN map in the LU controller maps the outer LUN to one or more inner LUNs each of which designates an inner logical volume.

Stallmo et al. was cited in col. 18, lines 15 - 20 in the rejection of claim 2 in connection with "inner LUN." The cited portion of Stallmo et al. describes "an id to be used by the host for communicating with the disk array. For SCSI interfaces this is a SCSI id and a LUN." (Col. 18, lines 15 - 17, underlining added). The Stallmo "id" corresponds to the recited outer LUN of claim 1; the Stallmo "id" is "a SCSI id and a LUN" for a SCSI interface. Stallmo et al. do not show the use of an inner LUN, as recited in claim 1. For at least this reason, the Section 102 rejection of claim 1 is believed to be overcome.

A further aspect of the invention as recited in claim 1, as amended, is responding to an instruction to change the logical volume configuration in which the "LU controller modifies said LUN map to correlate a first outer LUN and a first computer ID with a second

inner LUN, said first outer LUN and said first computer ID being previously correlated with a first inner LUN.” Thus after a change in the configuration, the outer LUN is correlated (i.e., associated) with a first inner LUN and a second inner LUN. The LU controller modifies its LUN map accordingly.

Stallmo et al. does not show the allocation of a second LUN and the correlation of the second LUN with an outer LUN in response to an instruction for changing the logical volume configuration. As stated in the Abstract, Stallmo et al. disclose a system in which “small write operations are mapped into RAID 1 configurations, and medium and large write operations are mapped into RAID 3 configurations. The data are migrated into RAID 5 configurations as a background operation, to minimize the disk space lost.” (See also col. 6, lines 25 - 35). Stallmo et al. teach that write operations with different data sizes are mapped into a particular RAID level (RAID 1 for small writes, RAID 3 for larger writes). Moreover, Stallmo et al. teach that data can be migrated to RAID 5 configured storage as a background operation. These teachings do not show the correlation (i.e., association) of an outer LUN to a second inner LUN in response to an instruction to change the logical volume configuration.

Appl. No. 09/910,153
Amdt. dated February 23, 2004
Reply to Office Action of October 27, 2003

PATENT

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,


George B. F. Yee
Reg. No. 37,478

TOWNSEND and TOWNSEND and CREW LLP
Two Embarcadero Center, Eighth Floor
San Francisco, California 94111-3834
Tel: 650-326-2400
Fax: 415-576-0300
GBFY:cmm
60137240 v1